

TRANSACTIONS

OF THE

CHICAGO SURGICAL SOCIETY.

Stated Meeting, May 1, 1905.

The President, L. L. McARTHUR, M.D., in the Chair.

GENERALIZED SYSTEMIC BLASTOMYCOSIS.

DRS. D. N. EISENDRATH and OLIVER ORMSBY reported the following case:

The patient was a Polish laborer, aged thirty-three years, married, and had two healthy children. Had been ill since February, 1904. Was admitted to the Cook County Hospital in February, 1905, and assigned to the service of Dr. Eisendrath.

His present trouble began in February, 1904, the first noticeable departure from his usual good health consisting in a feeling of discomfort, involving the chest on the right side and extending clear through from front to back. This lasted for some time, and, in fact, is still present, being better and worse at intervals. In June, four months later, his first cutaneous lesion appeared. This was located below the left ankle and extended down to the heel, and eventually became a little larger than a dollar. Shortly afterwards the balance of the lesions appeared, but it is impossible to tell their exact mode of development. In addition to this area, the right leg had several large lesions, also the right and left forearm, and the face, chin, and neck, especially on the right side. Most of these lesions were quite superficial, the larger part of each being an ulcer, crust-covered in places, open in others. There was little induration but considerable sanguinopurulent discharge. The edge of the ulcer was slightly elevated and presented a bluish-red halo, in which there were located a few miliary abscesses. In some places of the area a papillomatous condition was present. The lesion on the arm was a subcutaneous nodule,

which later softened and was incised, and from the sinus left after this procedure, and in pus from both the lesions on the legs, the organism of blastomycosis was demonstrated. There was also present a large swelling on the left forearm, which apparently involved the whole circumference. It began about two and one-half inches below the elbow-joint and extended down the forearm about four inches. It involved both sides of the arm, and suggested the possibility of bone involvement. In a skiagraph of this lesion the bone appeared normal. This swelling was later incised and the same characteristic discharge released. There is still (May 1) marked involvement in this area. The lesions on the face protruded more extensively above the level of the skin and were papillomatous, and some were even verrucous. There was much discharge and marked crusting.

About November, 1904, great muscular weakness set in and marked swelling of the feet and ankles occurred. This gradually increased until he was unable to work. On his admission to the hospital, in February, 1905, he presented lesions on all the above-mentioned areas, and was very much emaciated, pale, anæmic, exceedingly weak, and had some elevation of temperature. Marked oedema was present in the ankles, feet, face, and arms. He coughed only occasionally. Although the patient constantly denied having a cough or expectoration of any moment, and although his attendants at the hospital had not noticed these symptoms, on April 26 a large amount of blood-stained mucopurulent sputum was collected, in which the organism was plentifully found. On March 22, pus was removed from a subcutaneous, unruptured abscess situated on the left forearm and inoculated on various media, and later in animals. Pure cultures of blastomycetes grew on all the cultures. On March 28, six days after this inoculation, growth was plainly visible, and after this the cultures grew rapidly. These were pure cultures of blastomycetes. While, as is usual, only spherical and budding forms appeared in the fresh pus, segmented mycelium, with lateral conidia, grew on the media. This pus was stained for tubercle bacilli, with negative results. Blood cultures, thus far, have been negative, as has also examination of the urine relative to blastomycetes. Albumen and casts were present, however, in the urine. On March 23, tuberculin was given with negative results. No tubercle bacilli have as yet been demonstrated in

sections or pus. This examination is far from complete. During his two months' sojourn at the hospital, his temperature has ranged from 98.6° to 102.8° F. The latter half of the time the temperature has been considerably lower. As a rule, there is an exacerbation each evening. Under large doses of potassium iodide internally, with radiotherapy, antiseptic dressings, and surgical interference locally, marked improvement has occurred. The cutaneous lesions have largely healed and the patient has gained in weight, but he still has much infection internally, as evidenced by the numerous organisms demonstrated in the sputum only five days since, and also by other general symptoms.

Animal inoculations are under way, but no report can be made as yet.

DR. FRANK HUGH MONTGOMERY called attention to the increasing number of systemic cases of blastomycosis. In addition to the four published cases referred to by Dr. Ormsby, the one reported by Curtis, in France, was undoubtedly of the same nature, and the five or six cases reported from California as "Protozoic Disease" or "Coccidoidal Infection" were almost identical with systemic blastomycosis in clinical symptoms, including fatal termination, and in the organisms cultivated. The organisms in the California cases, however, differed from those found in blastomycosis in that in tissue they developed by endogenous spore-formation and never by budding. This distinction called for a separate classification of these cases at present. Though it was known that some varieties of blastomycetes, under certain conditions, might multiply by endogenous spore-formation, in all the cases of blastomycosis so far studied the organisms in the tissue developed by budding. Although frequently in cultures and a few times in tissue the speaker had seen blastomycetes which contained what appeared to be spores, he had never been able to trace the further development of these spores either in tissue or in cultures.

In addition to the reported cases, there were now in the neighborhood of Chicago at least five individuals under observation suffering from a systemic infection with blastomycetes, and several other cases in which systemic infection is probably present. In view of the number of generalized cases now recognized, the subject of blastomycosis was becoming one of general medical and surgical interest, and could no longer be limited to the field of dermatology.

DIFFUSE MULTIPLE FIBROMA MOLLUSCUM.

DR. DANIEL N. EISENDRATH presented a man, sixty-five years of age, who stated that he noticed the development of these tumors about forty years ago. The chief reason for showing the patient was more as a medical curiosity than from a therapeutic stand-point. The man presented himself at his clinic at the College of Physicians and Surgeons about three weeks ago. Microscopically, these numerous tumors were composed of soft fibromatous tissue. Some of the tumors were considerably larger than others. Those on the breast were quite large. Some of the tumors felt much harder than others, and as though they contained cartilage. He exhibited photographs of a similar case seen at the County Hospital.

Whether this disease had something to do with the nervous system was still an unsolved question. Sometimes the disease was symmetrical, at other time it was not. It appeared in various places on the face in some, while in others there were no tumors on the face. In the present case the man had an unusually large number, chiefly confined to the anterior and posterior surfaces of the trunk.

SCHEDE'S OPERATION FOR EMPYEMA.

DR. D. A. K. STEELE showed a young man, German-American, twenty-eight years of age, who was taken sick a year ago last February with pulmonary trouble. He saw him in the latter part of January or the early part of February of this year, about a year after his illness began, and at that time he was suffering from a chronic empyema of the left chest. He had been under the care of a competent physician for a considerable length of time, had been treated by him, and the chest had been aspirated repeatedly. Subsequently a drainage-tube was introduced between the ribs. There was a great deal of emaciation; the patient was cachectic, and drainage at the time he saw the patient was inefficient, the drainage opening being filled up with granulation. Patient went to Wesley Hospital, where a couple of inches of rib were resected, and a double drainage-tube introduced, the cavity flushed, and treated in the ordinary way for a few weeks.

Patient returned home, and the irrigation of the empyema cavity was continued after he returned home. Two or three weeks ago, as the patient was not doing very well, he advised the resection of all the ribs from the second rib down on the left side, a typical Schede operation for the purpose of obliterating the empyema cavity. Patient again entered the hospital on the 30th of March, and was anæsthetized, the first operation having been done under cocaine anæsthesia, the second under general anæsthesia. The ordinary curved incision was made, the incision being made so that he was able to remove all the ribs from the second down along the costal cartilage to the bottom of the pleural cavity and along the tubercle of the ribs posteriorly up to a corresponding height. The incision through the soft parts was made by a single sweep of the knife, the parts dissected, the arm carried over the head, and the soft parts retracted with large hooks, and then with a curved rib-cutter the ribs were divided, the cartilage very readily and the ribs on the posterior side. The whole operation was done as quickly as possible because of the danger of collapse. There was no hæmorrhage requiring a ligature. There was oozing from a few blood-vessels, which were caught with clamp forceps. The soft flap was turned up, which gave a beautiful view of a dextrocardia. Pulsations could be seen because the whole left side of the man's chest was exposed to view. The lung was collapsed and bound down; there was a thick plastic exudate covering the lung and pericardium, and the surface of the chest wall, which was removed by a large spoon curette, scraping away rapidly, and the operation was completed by packing the cavity with strips, four inches wide, of iodoform gauze in layers, brought out at the posterior angle of the wound. The upper portion of the wound was closed with a few interrupted sutures, and nearly all the anterior and lateral portions closed in the same way. The cavity had not yet completely closed. The upper two-thirds of it was closed, but there was still a small cavity below where he did not remove the ribs quite far down. There was one point of infection over the costal cartilage (about the sixth or seventh costal cartilage) where there was a spicule of bone, where he did not trim the edge as closely as possible.

The cause of the empyema was a tubercular pleurisy primarily, a mixed infection, with the ordinary after-history.

Dr. Steele said the Schede operation was reserved for only a limited number of cases. In young people the majority of the cases of empyema got well, perhaps, with multiple aspirations; another large number of cases were cured by a less radical operation than this, known as the Estlander operation, by which a portion of the ribs only, usually upon the anterior part of the chest, was removed. But there were a certain number of cases, however, in which the chest wall would not collapse, and in which it was impossible to obliterate the empyema cavity unless one removed the ribs and soft parts and curetted, freshening the parts, so that the opposing pleural surfaces might be covered with a fresh integumentary and muscular flap after the removal of the ribs. This would enable the obliteration of the cavity except on the left side, where there remained the condition now observed.

He saw a case six years ago that was operated by Dr. Roswell Park, of Buffalo, which presented very much the same appearance as this man's case presented several years after operation, in which the empyema cavity had become completely obliterated, but there was a window-like appearance of the chest, the serous surface having assumed a parchment-like, dry appearance, and the man carrying one-quarter pound of cotton batting to protect the pericardium from external injury. He thought the same thing would occur in this case, although he hoped the cavity would become obliterated. It did not appear now, however, as though it would be. He hoped the concave or cup-shaped cavity would stop secreting after awhile. It might remain permanently open, but without discharging, provided the man lived long enough. In the upper portion of the right lung there were already new foci of tubercular infection; patient's sputum contained a large number of tubercle bacilli.

He exhibited the ribs that were resected from the left side.

DR. ARTHUR DEAN BEVAN confirmed what Dr. Steele had said with regard to the difficulty of obliterating the cavity at the upper portion of the pleural space. In text-books, and in many descriptions, the cavity is described as being one with the largest portion below. As a matter of fact, in almost all empyemas the large cavity is above, opposite the second, third, and fourth ribs,

sometimes as low as the fifth. The lower part of the space, as a rule, was obliterated by the gradual encroachment of the diaphragm upon the lower part of the pleural space, the crowding up being produced by intra-abdominal pressure, and a lack of similar opposing pressure, or the normal pressure one would expect from the lung. He had found in his cases both by filling the cavity with iodoform emulsion and taking an X-ray view, and at the time of exposure the large part of the cavity was at the upper angle. He thought that it was a simple matter to obliterate in an empyema case the lower part of the space. The great problem, however, was to obliterate the upper portion.

In the last three cases operated on by the Schede method, he had adopted a scheme which had been of a great deal of value, namely, after making a Schede operation, early encouraging the patient to develop the lung on the opposite side, or the remnant of the lung on the affected side, by persistent efforts at respiration, either with a water-bottle or with a rubber bag, and in two cases the results had been admirable. In the case of a boy, six years of age, in whom there was quite a considerable cavity at the upper angle, he started him shortly after the Schede operation at blowing up a rubber bag every day, even before there was any effort at much repair, and there was developed opposite the second and first ribs enough lung tissue to obliterate entirely the cavity. And he wanted to make that special point, although he had called attention to it before. But he thought it was really worth while to emphasize the point in empyema, that the difficult portion of the cavity to obliterate was the upper part, and that very early; if one did a Schede operation before wound repair was at all complete, effort should be made to expand the upper portion of the lung or to fill in that portion by an expansion of the lung of the opposite side.

LEFT INGUINAL CONGENITAL HERNIA, WITH TWO TESTES ON THE LEFT SIDE.

DR. A. E. HALSTEAD presented a man, thirty years of age, who was operated upon at the Cook County Hospital on the 11th of April, this year, for a left congenital inguinal irreducible hernia, which contained omentum at the time of the operation.

He showed him because the patient presented an interesting anomaly in the development of the testicle. After opening a

very large sac and ligating off a portion of the omentum, he pulled up the cord, which seemed to be rather thick, and in doing so dislocated from the left side of the scrotum a pair of testicles. The epididymis was very large and fused, showing the two organs that had originally existed. The cord contained two vasa deferentia, two spermatic arteries, two sets of veins, inclosed in one vaginal process. This double cord passed through the left inguinal canal. The right side of the scrotum and the right inguinal ring were empty.

He did not have an opportunity to photograph the specimen at the time, but he thought the members by examination could determine that there was no right spermatic cord, and that the left side of the scrotum contained two testicles.

The hernia presented nothing unusual, excepting that it was somewhat larger than is ordinarily seen. A rectal operation was performed on the man afterwards, and he learned that the prostate was symmetrical. There appeared to be but one large seminal vesicle.

ADVANCED HODGKIN'S DISEASE.

DR. DANIEL N. EISENDRATH presented a patient who had been under X-ray treatment by Dr. J. F. Smith, during which time he had shown remarkable improvement. He said it was a case of very advanced Hodgkin's disease, in which internal treatment had been tried for a number of years without much benefit.

DR. JOSEPH F. SMITH said the man was twenty years of age, and about five years ago first noticed the appearance of these swellings in the neck and axilla. About six weeks ago patient was sent to him by Dr. Eisendrath, with the request that he be treated with the X-ray. The patient was under X-ray treatment three or four times a week, and since that time he had improved very materially. At the time treatment was commenced his neck was eighteen and a quarter inches in circumference, and in making a measurement a sort time ago he found there had been a diminution of about one inch and a quarter in circumference. The patient had had a marked reaction from the use of the X-ray two or three times, so that treatment had to be discontinued on that account. The glands in the axilla had responded much more rapidly to the influence of the X-ray than

had those in the neck, although at the time treatment was commenced he had an enormous mass of glands on the left and right sides of the neck. The mass of glands in the axillary space had nearly disappeared.

Patient was operated upon two years ago by Dr. Halstead, who removed at that time a mass of glands from the left side of the neck, but there was a recurrence in a short time. The interesting features in the case were the number of enlarged glands and the degree with which they had responded in six weeks to X-ray exposures. There were still a great many enlarged glands present, but the neck had diminished very materially in size.

DR. EISENDRATH said that Dr. Halstead mentioned the fact to him that he had operated upon the patient two years ago for tubercular glands of the neck. He (Eisendrath) had under observation at the present time an atypical case of Hodgkin's disease. There were twenty or twenty-five glands on both sides of the neck enlarged; also a number in both axillæ and both groins. Dr. Burroughs, who is associated with him in the clinic, told him that he had operated on the man himself a year ago and removed caseous tubercular glands. This case brought up the point as to whether there was a certain relation between pseudolymphatic glands and tuberculosis. His attention was called to this in Vienna in 1892, during which time he saw a number of cases of Hodgkin's disease in which there were tubercular lesions shown in various parts, as tuberculosis of the spleen, liver, and so on.

DR. HALSTEAD stated that he had operated on this patient two years ago, at which time he removed several enlarged cervical and axillary glands on the left side, sections of which were made for microscopical examination, and which were shown to be typical tubercular glands. A large number of tubercle bacilli were found. There was nothing at that time to indicate that the man had Hodgkin's disease, and personally he did not believe that he had such a disease now. The man did not look like a patient who had Hodgkin's disease. His great muscular development, lack of anæmia, and his general good physical condition spoke against such a diagnosis. The fact that the man had two years ago nothing but tuberculosis led him to believe that the case was one of the type of pseudoleukæmic glandular tuberculosis, and not Hodgkin's disease.

DR. EISENDRATH replied that the diagnosis of Hodgkin's disease was made on account of the blood findings being negative. If he remembered rightly, there were 10,000 leucocytes, with none of the other characteristics. The number of red corpuscles was normal. Then, too, he considered the large number of enlarged glands, and their universal distribution over the different glandular regions. He did not know that the patient was coming to the Society this evening, as, if he did, he would have given the case and its history more careful consideration. At a glance, however, one would scarcely think it was anything else except the typical picture one was accustomed to see of Hodgkin's disease. On account of the great improvement under X-ray treatment, he requested the privilege of showing the patient.

In going over the differential diagnosis of this case as to whether it was Hodgkin's disease or not, he could not see what else it could have been, except it be one of those cases of atypical Hodgkin's disease which he had at the present time, and was on the border-line between Hodgkin's disease and tubercular glands of the neck, which border-line he did not think was sharply set. There were cases, like the one he had under observation at the present time, in which the number of enlarged glands did not show any tendency to caseation. Furthermore, there were so many enlarged glands scattered in different parts of the body that he hardly knew what to call the case except an instance of Hodgkin's disease.

DR. L. L. McARTHUR called attention to a fact brought out by Dr. Reed, of Johns Hopkins, that fully 50 per cent. of these cases in which the glands were examined microscopically, with the clinical diagnosis and ear-marks of Hodgkin's disease, were proven to be both histologically and microscopically hypertrophic glandular tuberculosis.

DR. HALSTEAD called attention to the work of Fisher on diseases of the lymphatics in which he (Fisher) describes a type of tubercular lymphatic disease, or the pseudoleukæmic form of lymphatic tuberculosis, in which there was but slight tendency to caseation. The disease progressed usually to a fatal termination. He had seen such a case at the Cook County Hospital, where the post-mortem examination, made by Dr. Hektoen, where the bronchial glands resembled a bunch of bananas. The glands were

very large, and many of them were examined, but none showed any signs of softening or of breaking down. In all tubercle bacilli were found in great numbers.

DISTENDED GALL-BLADDER.

DR. WILLIAM M. HARSHA reported the case of a woman, aged fifty-three years, who was first seen with Dr. R. E. Brown, July 10, 1904. History then obtained was that patient was seized with general abdominal pain July 5. Distention of the abdomen increased gradually without temperature; there was no bowel movement since attack; vomiting more or less every day, assuming intestinal character the last two days. July 10, temperature, 100° F.; great abdominal distention, intestinal regurgitant vomiting, anxious expression; small pulse, 100.

A median incision was made below the umbilicus. Exploration of the abdomen discovered an enormously distended gall-bladder, reaching below the level of the umbilicus; intestines distended, with no other cause apparent. Median incision was temporarily closed by gauze sponges. Incision was made over the site of the gall-bladder, and the gall-bladder emptied of a pint or more of mucus and bile, including forty or fifty gall-stones, some of which occluded the cystic duct. After draining the gall-bladder in the usual way, a ventrofixation of the uterus was done, and a median incision closed. There had been for some years complete prolapse of the uterus. The patient made a prompt recovery. Bowel movements occurred within a few hours after the operation. He had been able to find no such case recorded in the last five years. But the late Professor Fenger reported a case of this kind in the *Chicago Medical Recorder*, 1898, page 310, as follows: "Symptoms of acute intestinal obstruction, seemingly with peritonitis, and nothing to point to the biliary tract. Median incision. Peritoneum normal throughout. Intestines uniformly distended and nowhere obstructed. A distended gall-bladder was the only abnormality found. The median incision closed and lateral one made over the gall-bladder. Gall-bladder considerably enlarged, tense, free from adhesions, and somewhat congested. Thinking the condition of the gall-bladder might not be the cause of the obstruction, but that the latter might be dynamic and of unknown cause, I resolved upon cholecystostomy in two stages. The symptoms of absolute obstruction continued

unabated. After thirty-six hours the gall-bladder was opened, pus and stones evacuated, and symptoms of intestinal obstruction ceased immediately.

OVARIAN CYST WITH TWISTED PEDICLE.

DR. HARSHA narrated the history of a woman, thirty-three years of age, who for several years had had attacks of obstruction of the bowels lasting three or four days, during which time she was confined to bed with pain and vomiting. November 27, 1904, she was first seen by Dr. Harsha when she was just recovering from the most severe attack of this kind which she had ever experienced. Her physician, Dr. Hilton, gave the following account of the attack: November 23, patient was suffering from profound shock; cold surface, irregular pulse, vomiting of intestinal contents, and constant desire to empty the bowels. The exhaustion amounted to collapse. There was no bowel movement for four days. Examination on November 27, 1904, discovered a small ovarian cyst on the right side. Operation, December 1. Cyst found the size of a small orange, with twisted pedicle, which was removed, patient recovering promptly, and having no symptoms of intestinal obstruction since. No peritonitis apparent; no gangrene of cyst; twisting not sufficient to shut off blood supply. There were slight adhesions at the outer side of the cæcum, at the end of the appendix, evidently of long-standing, and apparently not capable of causing any symptoms of obstruction.

To this case he added an account of a second case in the person of a woman thirty-five years of age, who was first seen with Dr. Z. H. Goings, April 24, 1905. He gave the following history: April 21, patient had pain in the right lower abdomen. Two weeks before she had similar pain, which ceased in two days. The patient was in bed, with the right thigh flexed; great tenderness over the right lower abdomen; vomiting; no temperature; pulse, 78. April 22, less pain, due probably to anodyne. Examination showed a fluctuating tumor in the right side of the pelvis; great abdominal tenderness. April 24, pain severe, patient restless, with anxious facial expression; pulse, 105; temperature, 101.5° F. April 25, operation performed. An ovarian cyst the size of a foetal head, with twisted pedicle, was found and removed. The cyst and pedicle were black to within an inch of

the uterus. Prompt recovery followed the removal of the cyst. In this case there was obstruction of the bowels since the date of the attack, April 21. But the symptoms were not so urgent as in the former two cases. There was no intestinal vomiting. It was not uncommon for two or three days to elapse without bowel movement. Operation was not done for the relief of obstruction of intestines only, but on account of the tumor, with increasing signs of infection. Vaginal section was first made, and tumor palpated. It readily passed up from the pelvis to the abdomen, presenting a central fluctuating tumor. A median abdominal incision was then made. In the first case of distended gall-bladder, it might be that the pressure on the colon was sufficient to cause obstruction. There was no peritonitis, and no pus in the gall-bladder.

In the other two there was no involvement of the intestines in any mechanical way that would account for the obstruction, and it seemed probable the obstruction was reflex. In none of these cases was there any evidence of local peritonitis to which the obstruction might be ascribed.

DR. A. J. OCHSNER said he had seen a duplicate several times of the first case reported by Dr. Harsha. He had seen several cases of intestinal obstruction similar to this case and from the same cause, and in each instance the obstruction was supposed to be mechanical. He had opened the abdomen a number of times in cases in which there was obstruction opposite the entrance of the common duct, in which there was a distended stomach and distended duodenum, and upon lifting the transverse colon the jejunum was found in the same condition which one sometimes finds other portions of the small intestine, simply assuming the form of a string, and in these cases the patients vomited bile precisely as they did in case of mechanical obstruction. The obstruction was in the cystic duct, or, as in one case he saw, it was in the lower end of the gall-bladder, due to a wedged-shaped stone which had lodged in this position.

Symptoms of obstruction in connection with ovarian cysts, with twisted pedicles, were not so very uncommon. He had seen such cases, and in one the patient's abdomen was opened by a country physician for the relief of the obstruction, and finding a black mass, the patient was transported to the Augustana Hos-

pital in this city, and the speaker found the condition which Dr. Harsha described in his second and third cases. He recalled several such cases among his cases of twisted pedicle, one an early one, in which he and a number of others made a diagnosis of mechanical obstruction, volvulus; but the operation showed the presence of an ovarian cyst with twisted pedicle. It is easy to make a wrong diagnosis in these cases because the history corresponds to that of a volvulus.

BROWN ATROPHY OF THE HEART AS A RESULT OF
CHOLECYSTITIS AND A COMPLICATION OF
CHOLECYSTECTOMY.

DR. BAYARD HOLMES read a paper with the above title, for which see *ANNALS OF SURGERY* FOR DECEMBER.

DR. DANIEL N. EISENDRATH asked how the post-mortem findings could be reconciled with the clinical symptoms of sudden dyspnoea, cyanosis, and death?

He asked whether a search was made of all branches for embolism of the pulmonary artery or a blood-clot lodged in one of the branches of the pulmonary artery, because those dangers were comparatively frequent after all abdominal operations. A number of such cases had been recently reported in Brun's "Beiträge" and in Heidendoerfer's clinic. He thought it was impossible to avoid these complications.

Carelessness was shown in the examination of the urine, as it was done in ordinary hospital routine work; and one was apt to examine simply a single specimen before operation and be satisfied with it. He thought a rule ought to be made, before opening the abdomen in any case, to have a twenty-four-hour specimen examined, and an examination very carefully made for evidences of nephritis. He had had one experience which taught him a lesson, and that was in a patient older than the one operated upon by Dr. Holmes, in whom there was a latent nephritis. The urine was examined a number of times by her physician; yet after the anæsthetic was given nephritis developed, that threatened her life for at least twenty-four hours, the case terminating in a fatal uræmia.

DR. ARTHUR DEAN BEVAN asked Dr. Holmes if death in his case could not have been ascribed to an atheromatous condi-

tion of the coronary arteries? He had seen cases of death from anæsthesia, posted by competent hands, and yet nothing else was found at the post-mortem examination to explain the death except a general atheromatous condition, and especially atheroma of the coronary arteries. It was a well-recognized fact that, even without an anæsthetic, a condition of atheroma of the coronary arteries was capable of producing sudden death, being preceded by cyanosis and dyspnœa. He remembered distinctly a case occurring in the pathological institute in Leipsic, in which death occurred shortly after the administration of the anæsthetic, within an hour or two, in which the same picture was found, and Birch-Hirschfeld ascribed death to atheroma of the coronary arteries, or to an atheromatous condition rather than to any other fact.

He thought it was too early to place the sudden death in Dr. Holmes's case in the category of cases which were now being very carefully studied of the late poisonous effects of anæsthetics, accompanied with acid intoxication. These usually appeared later, seldom inside of thirty-six hours, and from that time on, and would be accompanied with fatty changes in the liver and kidneys, possibly with the changes which Dr. Holmes had described also in the heart, although Dr. Bevan imagined they were chronic in character.

DR. HOLMES, in closing the discussion, said the autopsy was made with the utmost care and deliberation, and the blood-vessels of the lungs were examined for thrombi as well as the blood-vessels of the liver and those in the neighborhood of the operation. He had neglected to say, however, that the cœliac axis was very extensively atheromatous; while there were only a few patches of atheroma in the hepatic, gastric, and splenic arteries.

Examination of the urine was conducted in this way: A single specimen was passed and examined in the office when he first saw the patient, and before he had any assurance the case would come for operation. Some weeks afterwards the patient appeared for surgical treatment, and at that time a twenty-four-hour specimen was examined; a second specimen was also examined, but it was not a twenty-four-hour specimen. After the operation, six ounces of urine were passed and examined; after death the bladder was catheterized, the urine examined, but in

none of these examinations were any casts discovered or any albumen found. How this could have been the case, he did not know, because he thought the woman ought to have had casts in her urine, and that these should have been discovered, and if they had been discovered, it would have put him on his guard.

It was an oversight not to have had an expert to examine her heart. His own opinion was that the woman died from disease of the coronary arteries, just as an old man of seventy might die after an anæsthetic. It seemed rather remarkable to him that this woman had died under the circumstances, as the operation was extremely short, occupying only thirty-eight minutes, which included scrubbing of the abdomen before the operation, and the application of the dressing. Gas and ether were the anæsthetics used. There was one thing radically wrong. The woman was allowed to go out; she had two or three dinners in the week before operation, and at these dinners she had something to drink as well as something to eat. She had a good time. He thought this was absolutely wrong under the circumstances and the condition she was in.

The temperature was subnormal after the operation; it was never normal, and it was 97.5° F. at the lowest. Immediately before death the pulse rose to 120, and during the last twenty minutes of life the pulse went down to 80 and 50, according to the count of the interne. The changes were so rapid that, although he started for the hospital as soon as he heard things were going wrong, the patient was dead before he reached the hospital.

Stated Meeting, June 7, 1905.

The President, L. L. McARTHUR, M.D., in the Chair.

BIOLOGICAL ASPECT OF CARCINOMA.

DR. G. N. CALKINS, of Buffalo, N. Y., after discussing at length the reasons why the differentiated epithelial cell began the process of abnormal division, resulting in the development of

carcinoma, mentioned the studies that had been undertaken relative to the nature of division energy of the cell, to find out what it was that would control it, what would increase its activity, what would decrease its activity, what stimuli were necessary, what conditions of metabolism and morbidity had their effects upon the division energy of the cell, etc.

He mentioned the theories in vogue which had to do with the explanation of the stimulus of division energy of the cell. Of the various theories advanced, he considered only two. The first, Marchand's, which was analogous to the stimulus of the insect poison on plant cells; and, second, the parasitic hypothesis.

He made a brief statement of the work on mice which they were doing in the study of cancer at the State Cancer Laboratory in Buffalo. They had in Buffalo some 200 mice with carcinoma. The original tumor came from a mouse which Dr. Gaylord brought with him from Professor Jensen's laboratory in Copenhagen in February, 1904. The mice Dr. Gaylord brought with him, when they arrived in Buffalo were dead. They died on the way from New York to Buffalo. The tumors were removed and put on ice. In three days, when mice had been obtained, the tumors were transplanted into normal mice. Fifty per cent. practically of the transplantations took, and a large number of mice developed carcinoma. In transplanting, a bit of the tumor is ground up with salt solution; the fibrous material is removed, and this cancer mush, as they call it, is either injected or inoculated under the skin in the cervical region, about one-tenth of a cubic centimetre being put into each mouse. In from ten days to two weeks a tumor made its appearance, showing that the inoculation was successful. In three, five, or six weeks the mouse developed symptoms of cachexia and ultimately died. The tumors that developed varied in size from one-third the weight of the mouse plus the tumor to one-fifth. These tumors were transplanted from mouse to mouse as they died, nine times in their series. Professor Jensen had transplanted the tumors from mouse to mouse for a period of two and a half years before Dr. Gaylord brought mice from his laboratory to Buffalo, so that altogether there had been, in all probability, about thirty to thirty-five generations or transplantations of this tumor. These tumors were nothing whatsoever but metastases from the original growth. The cells of the old tumor in the new

environment were stimulated to grow and develop into a new tumor. According to the Marchand hypothesis, the primary stimulus which the first mouse received was a poison which originated from a deranged metabolism, from malnutrition, or from some other product of morbidity in the organization of the mouse.

Were we to assume that there was formed in every mouse morbid products which carried the stimulus forward? In other words, can the organism produce a stimulus which carries on its own degenerative disease factors?

On the other hand, according to the parasitic hypothesis, we might assume that the original mouse which developed the primary tumor had a parasite; that this parasite developed a poison. When it came to stimulation and to division energy, there seemed to be some poison of one origin or another. With the parasitic hypothesis, it was a parasite that produced the poison. Should we say that it was a single parasite or a group of parasites which produced the primary stimulus, which carried the division energy through generations of tumors, a large mass of cells which represented ten or twenty times the actual weight or size of the mouse, or should we say that every epithelial cell had within itself parasites which kept on producing a stimulus that kept up the division energy? There was absolutely no morphological evidence in cancer cells upon which to base such a fact.

The advocates of the parasitic hypothesis were forced to the conclusion that the parasite at present must be ultramicroscopic. The speaker, however, did not wish to advocate that view. He said, however, it was gaining ground throughout the scientific world. Scharbin, the most eminent parasitologist, believes in the ultramicroscopic organism. The Pasteur Institute had practically accepted this explanation of many diseases. There were pathologists here and there who were loath to believe in an ultramicroscopic parasite. There was one point which would seem to support either hypothesis, according to the results they had obtained with tumors and mice.

In November of last year a tumor began to deteriorate; the mouse showed signs of natural immunity and ability to throw off the disease that it had taken. A great many mice spontaneously recovered. They had had altogether over 150 cases of spontaneous recovery from true carcinoma in mice. They thought the tumor material was growing physiologically old, and

that it would die out and their means of experimentation would be lost. A tumor, however, was transplanted to a new strain of mice, and the virulence of the cells was restored, so that the mice died in from three to five weeks after inoculation.

Dr. Clews, chemist of the laboratory, conceived the idea that the blood from such a spontaneously cured mouse might have the possibility of immunity. He inoculated some mice who had tumors about the size of a hazel-nut with the immune blood from one mouse that had spontaneously recovered. This was done in a number of cases, and six tumors disappeared by this immune serum. Experiments showed that immunity was successful up to the present time, and carried with it protection to the mice against reinfection.

The experiment was tried again in a slightly different form. Forty-four mice from the same source were taken; twenty-two of them were treated with cancer mush plus the immune serum from the mice which had spontaneously recovered; and twenty-two of them were treated with cancer mush plus the normal blood of normal mice. The only difference between them apparently was the immune factor in those cases in which the mice had spontaneously recovered. In the twenty-two mice treated with this immune serum, three developed tumors. In the twenty-two mice that were treated with normal blood plus the serum, ten tumors developed, just about the proportion of tumors successfully produced by their inoculation method.

This, in brief, was the position, from a biological point of view, of the cancer problem to-day. It was not known what caused the stimulus. It was not definitely known that there was a parasite in cancer. It was not known that the specific poison produced in any way was the cause of carcinoma. Progress was being made. The work being done at the cancer laboratory was of that earnest type which inspired confidence in its results, and it was hoped would ultimately produce good effects.

LAW OF ACCELERATING RISK IN CANCER.

Dr. E. WYLLYS ANDREWS read a paper with the above title for which see *ANNALS OF SURGERY* FOR DECEMBER.

THE X-RAY IN THE TREATMENT OF CARCINOMA.

Dr. WILLIAM ALLEN PUSEY read a paper with the above title, for which see *ANNALS OF SURGERY* FOR DECEMBER.

DR. ARTHUR DEAN BEVAN said the first thing that impressed him in the clinical study of carcinoma was that it was primarily a local disease. There certainly was a time in the history of every carcinoma when it was local, limited to one point, sometimes to a few points—concentric foci. One saw clinically occasionally epithelioma, for instance, which, when examined carefully, showed three or four points of invasion very close together. Clinically we saw carcinoma involving occasionally both breasts. These exceptions did not, however, disprove the statement that carcinoma was primarily a local disease.

A second point that impressed him clinically was, that whether carcinoma was a parasitic disease or not, its history was that of a parasitic disease. Whether the researches of the future showed that it was a peculiar clinical stimulus that acted upon the cells and produced these changes, or whether it was a parasite, whether it was purely chemical and independent of any low form of life, or the result of some low form of life, made no difference; the clinical history of carcinoma would remain that of a parasitic disease.

In regard to the present results of surgical treatment of carcinoma, these varied in different regions of the body, and the reports from different clinics varied widely. For instance, some surgeons, who had made several hundred operations for epithelioma of the cervix, state that possibly less than 5 per cent. of these cases were permanently cured. Some men even have gone so far as to state that less than 1 per cent. of such cases are permanently cured by surgery. On the other hand, cancer of the body of the uterus furnished a far greater proportion of permanent cures. Carcinoma of the larynx furnished a comparatively large proportion of permanent cures; while carcinoma of the breast occupied a rather mid-position between extremely fatal carcinoma of the cervix and more favorable carcinoma of the larynx. An analysis of the different statistics of carcinoma of the breast would seem to show that surgical treatment furnished somewhere between 20 and possibly 30 per cent. of permanent cures. In this connection, he said that in the last few years there had been a great effort made to improve the statistics, so far as permanent cure was concerned, from surgical operations in treating carcinoma, and in doing this there had been a certain amount of juggling. In one well-known surgical clinic reports of the

surgical removal of carcinoma of the breast had been extremely favorable. An analysis of the facts, however, revealed this explanation, which in part at least accounted for their very favorable results, *i.e.*, they had there divided their cases of carcinoma of the breast into two groups, and at the time of operation, or rather after the operation was completed, if in the judgment of the surgeon the case was one which gave good prospects of a permanent cure, it was reported. If the case did not, in the opinion of the surgeon, give a good prospect of permanent cure, it was pigeon-holed in a second group which was not considered in the final statistics. In other words, only those cases which were, in the opinion of the surgeon, favorable to permanent cure after the operation was completed were reported.

Statistics which were based upon the total number of cases operated upon would seem to give, in cases of carcinoma of the breast, the possibility of permanent cure in from 20 to 30 per cent.

There was one other point that had impressed him very much, and that was the three-year limit in connection with carcinoma. It had been taught at one time that, if a patient lived beyond three years without recurrence, there was little danger of such recurrence. A careful analysis of statistics would show that this was not so. Cases of carcinoma recurred three and a half, four, six, and even ten years after operation. There could be no doubt as to this. There was, however, a gradual diminution in the percentage of recurrences as the time period increased from the date of the operation.

He agreed pretty generally with the statements made by Dr. Pusey as to the value of the X-ray in epithelioma. He thought, however, it should not be used in cases of thick epithelioma, whether the lymphatics were involved or not. Superficial epithelioma was the form in which the X-ray was particularly of value. He would agree with Dr. Pusey, without any hesitation, that in superficial epithelioma the X-ray was the treatment of choice. On the other hand, in thick epitheliomas, say of the thickness of the thumb or the lower lip, it should not be employed. He had used it again and again, and while he had noticed a diminution in size in these cases of thick epitheliomas of the lower lip, yet as weeks went on there was the occurrence of lumps under the jaw, showing general regional invasion. He believed that the

X-ray should be used as an insurance against recurrence after breast amputation for carcinoma, and after operations for carcinoma in locations where we might expect that it would accomplish results. He believed, too, it should be used in the inoperable cases as a justifiable piece of experimental work from which we had reason to hope that we might obtain beneficial results. He felt, however, that the X-ray had been and was being employed, in a manner which required a word of caution from the profession, by men who were using it, and who did not hesitate to call out very loudly the value of their wares simply to make money out of it. There was no doubt but what the X-ray was a valuable agent. It was, however, doing a good deal of harm in the hands of such men, but not, of course, in the hands of scientific men like the essayist.

There were two great dangers from the use of the X-ray. One was that it would produce serious burns in the hands of men who were not experienced in its use; the other was that it would do positive damage when it was used in a case where a surgical operation, if employed sufficiently early, would hold out a good hope of permanent cure, but where delay produced by the use of the X-ray wasted valuable opportunity and lessened the chances of permanent cure.